A Comparison of Baiting and Perimeter Spray Programs for Urban Pest Management of Argentine Ants: A Demonstration and Cost Analysis

PIs: Drs. Les Greenberg and John H. Klotz

Synopsis

Urban pest management professionals (PMPs) consider ants to be the top economic pest in the United States (Jenkins 2001). In California, the most common pest species is the Argentine ant, *Linepithema humile* (Vega and Rust 2001), which can attain tremendous population levels and become a nuisance when it forages around and invades buildings (Knight and Rust 1990).

To control Argentine ants in and around structures, PMPs often use perimeter sprays with pyrethroids or fipronil. Achieving efficacy, however, is difficult because any small gap in the barrier provides passage for ants, and due to chemical degradation, irrigation, high temperature, and sunlight, a residual insecticide can last only about 30 days (Rust et al. 1996).

One alternative to perimeter sprays for Argentine ants is toxic bait. Unfortunately, most of the commercial baits available for ant control are not attractive to Argentine ants or kill them too quickly (Rust et al. 2002). Under current development, however, are liquid baits, which look promising for Argentine ant control (Rust et al. 2002). These liquid baits contain new active ingredients that are effective at ultra-low concentrations.

Low-toxic baits have several advantages over contact insecticides. First, they are more target-specific and use less insecticide, especially when delivered in a bait station. Second, baits eliminate the necessity of finding the nests, which in the case of Argentine ants can be widespread and extensive. Third, baits capitalize on the recruitment and sharing behavior of ants, whereby scout ants recruit their nest mates to newly discovered food, and these recruited ants return to the nest to share the food with the rest of the colony.

In spite of these advantages, pest control companies are reluctant to offer baiting programs for Argentine ant control because they are perceived as less effective and more labor intensive than perimeter treatments. However, Klotz et al. (2002) demonstrated that both could be equally effective at reducing ant numbers around homes.

The goal of this project is to identify the most cost-effective management program for Argentine ants by comparing the efficacy and costs to implement baiting or perimeter spray programs. Our research is directed at providing the needed data for a comparison of these techniques. The results from this research will provide the pest control industry with critical information for assessing the relative merits of baiting and perimeter spray programs. If the price for baiting programs is competitive with perimeter treatments, the industry stands to gain another important strategy for combating this invasive pest, which will significantly reduce pesticide use and provide longer-term control. If baiting is effective, it also provides another control strategy for homeowners who do not want pesticides sprayed on their property.

References

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